



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NORTHCENTRAL REGIONAL OFFICE

7/7/2011

Crystal Stroud  
[REDACTED]

**CERTIFIED MAIL NO. 7010 0290 0003 1042 8225**

Re: Act 223, Section 208 Determination  
Complaint No. 279579  
Granville Township, Bradford County

Dear Ms. Stroud:

The Department has investigated the possible degradation of your water supply well located at [REDACTED] in response to a 4/12/2011 complaint that recent gas well drilling activities may have affected your water well. On 4/13/2011 and 5/9/2011, the Department collected samples from your water supply. The samples were submitted to the Department's laboratory in Harrisburg for analysis. The analytical reports for the samples are included, as well as documents that will assist you with interpreting the sample results. The most recent sample results showed methane is present in your water supply at a concentration of 34 mg/l. Additionally, the analytical data collected by the Department reveals barium was present above its respective primary maximum contaminant levels (MCLs) in your water supply. The analyses also show iron, manganese, total dissolved solids (TDS), and chlorides exceeded secondary maximum contaminant levels (SMCLs) in your water supply. Primary MCLs are intended to reflect potential dangers to human health, while secondary MCLs reflect the aesthetics of the water (i.e. taste, smell, etc.).

The Department's investigation reveals the water quality conditions observed in your water supply are consistent with those observed in several nearby water supply wells sampled as part of this investigation, and those that have been historically documented in the North Branch Towanda Creek valley. The Department's investigation indicates that the conditions documented in your water well reflect background conditions/pre-existing and that gas well drilling has not impacted your water supply.

Methane is the predominant component of natural gas. Federal drinking water standard limitations have not been established for methane gas. The level of concern begins above 28 mg/l methane, which is referred to as the saturation level. At this level, under normal atmospheric pressure, the water cannot hold additional methane in solution. This may allow the gas to come out of the water and concentrate in the air space of your home or building. There is a physical danger of fire or explosion due to the migration of natural gas into water wells or through soils into dwellings where it could be ignited by sources that are present in most homes/buildings. Natural gas can also cause a threat of asphyxiation, although this is extremely rare.

When the Department is made aware of methane levels greater than 7 mg/l, we notify the water supply owner of the hazards associated with methane in their water supply. Please be aware however, that the methane levels can fluctuate. This means that even with a relatively low level of methane, you should be vigilant of changes in your water that could indicate an increase in methane concentration.

It is the Department's recommendation that all water wells should be equipped with a working vent. This will help alleviate the possibility of concentrating these gases in areas where ignition would pose a threat to life or property. Please note that it may not be possible to completely eliminate the hazards of having natural gas in your water supply by simply venting your well.

Should you have any questions concerning this matter, please feel free to contact William J. Kosmer, P.G. [REDACTED]

Sincerely,



Jennifer W. Means  
Environmental Program Manager  
Oil and Gas Management

Enclosures:  
Laboratory Analytical Results  
"How to Interpret A Water Analysis Report"

cc:  
Jennifer Means  
John Ryder  
William J. Kosmer, P.G.  
Rebecca Renner  
Complaint File #279579

Date of Issue: 05/21/2011 12:05:44  
PAGE 1 of 2  
DEP Bureau Of Laboratories - Harrisburg  
P.O. Box 1467  
2575 Interstate Drive  
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 029

Status: Completed

Name of Sample Collector: Rebecca Renner  
Date Sample was Collected: 04/13/2011

County: Bradford  
Municipality: Franklin Twp

State: PA

CRYSTAL STROUD

Sample Medium :  
Sample Medium Type:

Location: NOT INDICATED  
Reason: Complaint

DRINKING WATER FROM FRIDGE DISPENSER

Appearance: CLEAR

Laboratory Sample ID: I2011009751  
Completed  
Standard Analysis: 946

Legal Seal: H002334 Intact: YES  
Legal Seal: H002332 Intact: YES  
Legal Seal: H002333 Intact: YES

Date

And Time

Test Codes/CAS# - Description

Reported Results

Analyzed Analyst Test Method

01082M Sr in MG/L  
04/15/2011 10:18 AM RWHEELER EPA 200.7  
70300 TDS @180 C  
04/14/2011 12:00 AM LWILKINSONSM 2540 C

0.00 MG/L  
852 MG/L

00940A CHLORIDE 347.5 MG/L  
 04/27/2011 08:00 AM GRADEK SM 4500-CL  
 00900 Hardness T 0 MG/L  
 04/15/2011 10:18 AM RWHEELER SM 2340 B

PAGE 2 of 2

Analytical Report FOR  
 Oil And Gas Mgmt

Sample ID: 2371 029

Status: Completed

And Time	Test Codes/CAS# - Description	Reported Results	Date
Analyzed	Analyst Test Method		
00403 pH		8.8 pH units	
04/14/2011 04:06 PM	GDELONG SM 4500H-B		
** Comment ** Time Limit For Test Exceeded			
00095 SPC @ 25.0 C		1545.00 umhos/cm	
04/26/2011 10:10 AM	GDELONG SM 2510B		
00410 ALKALINITY		226.6 MG/L	
04/14/2011 04:06 PM	GDELONG SM 2320B		
00927A MAGNESIUM T		0.014 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
00945A SULFATE T		<15.0 MG/L	
04/20/2011 08:00 AM	MESNYDER EPA 375.2		
00530 T SUSP SOLID		<5 MG/L	
04/14/2011 12:00 AM	LWILKINSONUSGS I-3765		
00916A CALCIUM T		<.03 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
00937A POTASSIUM T		4.483 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
00929A SODIUM T		329.000 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
01055M Mn in MG/L		0.00 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
01007M Ba in MG/L		0.000 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		
01045M Fe in MG/L		0.00 MG/L	
04/15/2011 10:18 AM	RWHEELER EPA 200.7		

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The results of the analyses provided in this laboratory report relate only to the sample(s) identified in the report. Unless otherwise noted, the results presented on this laboratory report meet all the

requirements of The NELAC Institute (TNI). Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report. Tests noted with an "\*" are not included in our NJ NELAP Annual Certified Parameter List.

Taru Upadhyay, Technical Director, Bureau of Laboratories

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Date of Issue: 05/21/2011 12:05:38  
PAGE 1 of 2  
DEP Bureau Of Laboratories - Harrisburg  
P.O. Box 1467  
2575 Interstate Drive  
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 027

Status: Completed

Name of Sample Collector: Rebecca Renner  
Date Sample was Collected: 04/13/2011 11:46:00 AM

County: Bradford State: PA  
Municipality: Franklin Twp

CRYSTAL STROUD

Sample Medium : Water  
Sample Medium Type: Water

Location:   
Reason: Complaint

Appearance: CLOUDY, BUT NOT BUBBLING. WISPS OF "FOG", "SMOKE" COME FROM

Laboratory Sample ID: I2011009750  
Completed  
Standard Analysis: 946

Legal Seal: H002327 Intact: YES  
Legal Seal: H002331 Intact: YES

Date

And Time

Test Codes/CAS# - Description

Reported Results

Analyzed Analyst Test Method

00900 Hardness T

146 MG/L

04/15/2011 10:15 AM RWHEELER SM 2340 B

00403 pH

8.1 pH units

04/14/2011 03:58 PM GDELONG SM 4500H-B

\*\* Comment \*\* Time Limit For Test Exceeded

00095	SPC @ 25.0 C			1456.00 umhos/cm
04/26/2011 10:09 AM	GDELONG	SM 2510B		
00410	ALKALINITY			207.6 MG/L
04/14/2011 03:58 PM	GDELONG	SM 2320B		
00927A	MAGNESIUM T			7.548 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7		

PAGE 2 of 2

Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 027

Status: Completed

And Time			Date
Test Codes/CAS# - Description			
Analyzed	Analyst	Test Method	Reported Results
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00945A SULFATE T			<15.0 MG/L
04/20/2011 08:00 AM	MESNYDER	EPA 375.2	
00530 T SUSP SOLID			<5 MG/L
04/14/2011 12:00 AM	LWILKINSONUSGS	I-3765	
00916A CALCIUM T			46.100 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
00937A POTASSIUM T			3.220 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
00929A SODIUM T			232.000 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
01055M Mn in MG/L			0.07 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
01007M Ba in MG/L			4.774 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
01045M Fe in MG/L			0.40 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
01082M Sr in MG/L			7.83 MG/L
04/15/2011 10:15 AM	RWHEELER	EPA 200.7	
70300 TDS @180 C			824 MG/L
04/14/2011 12:00 AM	LWILKINSONSM	2540 C	
00940A CHLORIDE			341.4 MG/L
04/27/2011 08:00 AM	CRADEK	SM 4500-CL	

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received by the Laboratory. Any exceptions are noted in the report.  
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included in our NJ NELAP Annual Certified Parameter List.

Taru Upadhyay, Technical Director, Bureau of Laboratories

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Date of Issue: 06/16/2011 03:06:59  
PAGE 1 of 2  
DEP Bureau Of Laboratories - Harrisburg  
P.O. Box 1467  
2575 Interstate Drive  
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 071

Status: Completed

Name of Sample Collector: Rebecca Renner  
Date Sample was Collected: 05/09/2011 10:50:00 AM

County: Bradford State: PA  
Municipality: Granville Twp

CRYSTAL STROUD

Sample Medium : Water  
Sample Medium Type: Water

Location: NOT INDICATED  
Reason: Complaint

Sample pumped from Stroud well, currently not in use. Depth to bottom 34'. Pump at about 22'. Sample taken from 22'. 3.46 ft from top to water surface. Casing 1.39' above ground surface.

Laboratory Sample ID: I2011012864  
Completed  
Standard Analysis: 946

Legal Seal: I007335 Intact: YES  
Legal Seal: I007337 Intact: YES

And Time

Date

Test Codes/CAS# - Description	Reported Results
Analyzed Analyst Test Method	
70300 TDS @180 C	704 MG/L
05/10/2011 12:00 AM LWILKINSONSM 2540 C	
00940A CHLORIDE	284.7 MG/L
05/18/2011 08:00 AM CLEWANDOSKSM 4500-CL	

00900 Hardness T 138 MG/L  
 05/11/2011 10:53 AM RWHEELER SM 2340 B  
 00403 pH 8.0 pH units  
 05/10/2011 10:54 AM GDELONG SM 4500H-B  
 \*\* Comment \*\* Time Limit For Test Exceeded

PAGE 2 of 2

Analytical Report FOR  
 Oil And Gas Mgmt

Sample ID: 2371 071

Status: Completed

And Time	Date
Test Codes/CAS# - Description	Reported Results
Analyzed Analyst Test Method	
00095 SPC @ 25.0 C	1239.00 umhos/cm
05/11/2011 04:34 PM GDELONG SM 2510B	
00410 ALKALINITY	192.4 MG/L
05/10/2011 10:54 AM GDELONG SM 2320B	
00530 T SUSP SOLID	10 MG/L
05/10/2011 12:00 AM LWILKINSONUSGS I-3765	
00945A SULFATE T	<15.0 MG/L
05/18/2011 08:00 AM MESNYDER EPA 375.2	
00927A MAGNESIUM T	7.135 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
00916A CALCIUM T	43.500 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
00937A POTASSIUM T	2.743 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
00929A SODIUM T	190.000 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
01055M Mn in MG/L	0.10 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
01007M Ba in MG/L	4.130 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
01045M Fe in MG/L	4.23 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	
01082M Sr in MG/L	6.66 MG/L
05/11/2011 10:53 AM RWHEELER EPA 200.7	

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requirements of The NELAC Institute (TNI). Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report. Tests noted with an "\*" are not included in our NJ NELAP Annual Certified Parameter List.

Taru Upadhyay, Technical Director, Bureau of Laboratories

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Date of Issue: 06/08/2011 11:06:08  
PAGE 1 of 3  
DEP Bureau Of Laboratories - Harrisburg  
P.O. Box 1467  
2575 Interstate Drive  
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 072

Status: Completed

Name of Sample Collector: Rebecca Renner

Date Sample was Collected: 05/09/2011 10:54:00 AM

County: Bradford

State: PA

Municipality: Granville Twp

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CRYSTAL STROUD  
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Sample Medium : Water  
Sample Medium Type: Water

Location: NOT INDICATED  
Reason: Complaint

Laboratory Sample ID: O2011003345  
Completed

Suite: METH

Legal Seal: I007338 Intact: YES  
Legal Seal: I007339 Intact: YES

And Time	Test Codes/CAS# - Description	Reported Results	Date
Analyzed	Analyst Test Method		
74828	Methane	34000 UG/L	
05/10/2011 12:00 AM	DACLEMENS BOL BOL6019		
74851	Ethene	19.8 UG/L (U)	
05/10/2011 12:00 AM	DACLEMENS BOL BOL6019		
74840	Ethane	19.8 UG/L (U)	
05/10/2011 12:00 AM	DACLEMENS BOL BOL6019		
74986	Propane	14.2 UG/L (U)	
05/10/2011 12:00 AM	DACLEMENS BOL BOL6019		

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Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 072

Status: Completed

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The results of the analyses provided in this laboratory report relate only to the sample(s) identified in the report. Unless otherwise noted, the results presented on this laboratory report meet all the requirements of The NELAC Institute (TNI). Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report. Tests noted with an "\*" are not included in our NJ NELAP Annual Certified Parameter List.

Taru Upadhyay, Technical Director, Bureau of Laboratories

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Analytical Report FOR  
Oil And Gas Mgmt

Sample ID: 2371 072

Status: Completed

ORGANICS LABORATORY QUALIFIERS  
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U - Indicates analysis was performed for the compound but it was not detected.

The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantification limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25%

confirmation difference between the results obtained from the primary and

columns for dual column analysis methods (i.e. pesticides, triazines, PCBs, etc). The reported value is the average of the two results.

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

   - (Underline) - The compound is present at the amount reported. No flag.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.